APPENDIX D

"Core" Use and Application of 13°C Determinations Based On Site-Specific Information

As stated in the *Basis for EPA's Partial Disapproval of Washington's 2003 Water Quality Standard Revisions* there are several exceptions to EPA's general approach of using WDFW's databases to determine which streams should be designated as "Core" use. EPA's general approach was to designate streams as "Core" use when the WDFW Databases show: 1) salmon spawning beginning in mid-September or earlier *or* 2) steelhead spawning ending in early June or later. In some cases the WDFW Databases did not show summer salmon spawning or incubation yet EPA made a "Core" use determination. For these stream segments EPA relied on the other factors recommended in the Temperature Guidance to determine "Core" use designations. These other factors include:

- 1. moderate-to-high density *summer* juvenile salmon rearing
- 2. *summer* adult/sub-adult bull trout foraging and migration
- 3. summer juvenile rearing with current stream temperatures at or below 16°C
- 4. the potential to support moderate-to-high density *summer* juvenile rearing that is important for the recovery of salmon.

Section I, below, discusses the stream reaches where EPA used these factors to determine "Core" use for a stream.

There were also a few situations where the WDFW Databases indicated that summer salmon spawning or incubation occurred in a stream segment, yet EPA did not determine that these stream segments should be designated as "Core" use. This is because other site-specific information was considered in the final determination. Each of these situations is discussed in section II, below.

Finally, there were some situations where EPA used site-specific information to determine where and when the 13°C temperature criterion is needed. Each of these situations is described in section III, below.

NOTE: References to river miles are approximate, for the exact locations see EPA's GIS maps titled EPA Findings on Washington's Designated Uses and Application of 13°C to Protect Spawning & Incubation, and Application of 13°C and 9°C to Protect Spawning and Incubation.

I. Stream Segments Where WDFW Databases Do Not Indicate Summer Salmon/Steelhead Spawning but EPA Made A "Core" Use Determination

• Nooksack River in WRIA 1: The WDFW databases do not show summer salmon or steelhead spawning/incubation distribution in the lower 5 miles of this river, although they do show that it occurs immediately upstream of this reach. EPA determined these lower 5 miles should be "Core" use with the 16°C temperature

criterion because a variety of temperature sensitive fish uses are documented in the summer in the lower Nooksack River (e.g., adult/sub-adult bull trout migration, rearing and foraging; steelhead out-migration; Chinook rearing). Additionally, the Nooksack River is very important in terms of recovery of ESA listed Chinook and bull trout and it supports all eight anadromous salmonids. Also, current maximum temperatures in this reach (RM 3.4) are near the 16°C "Core" use criterion and are similar to current maximum temperatures upstream (RM 30.8). Based on the above information, EPA determined the entire lower Nooksack River, including this lower 5 mile reach, should have a "Core" use designation (see Appendix C for site specific information).

- Skagit River in WRIA 3: The WDFW Databases do not show summer salmon or steelhead spawning/incubation distribution in the lower 22 miles of this river. However, EPA determined that these lower 22 miles should be "Core" use with the 16°C temperature criterion because of the extensive adult/sub-adult bull trout foraging and migration use in this portion of the Skagit River during the summer (see Appendix C for site specific information on bull trout).
- Puyallup River in WRIA 10: The WDFW Databases do not show summer salmon or steelhead spawning/incubation distribution between RM 7.3 and RM 10, although they do show that it occurs immediately upstream of this reach. EPA determined that this segment should be "Core" use with the 16°C temperature criterion because Chinook and coho juvenile rearing occur in the summer and existing maximum temperatures in this segment are approximately 16°C, which are temperatures that can support high density juvenile rearing use. Maximum temperatures downstream of this reach, below the confluence with the warmer White River, are 17-18°C (see Appendix C for site specific information).
- Deschutes River in WRIA 13: The WDFW Databases do not show summer salmon or steelhead spawning/incubation distribution in this river, but they do indicate that coho salmon spawn throughout this river in the late fall. EPA determined that the middle and upper reaches of this river should be a "Core" use with the 16°C temperature criterion because coho juveniles rear in their natal stream for a year before out-migrating, and site-specific data show there is high density coho juvenile rearing in middle and upper reaches of this river during the summer (see Appendix C for the site specific information
- Streams in WRIAs 1 (Sumas R.), 5 (Church and Fish Creeks), and 13 (McLane & Percival Creeks): The WDFW Databases do not show summer salmon or steelhead spawning/incubation for these streams but they do indicate that coho salmon spawn in these water bodies in the fall. EPA determined that these stream segments should be "Core" use with the 16°C temperature criterion because coho juveniles rear in their natal stream for a year before out-migrating, and site-specific data show there is high density coho juvenile rearing in the summer (see Appendix C for site specific information).

- Several streams in WRIAs 11, 14, and 15: The WDFW Databases do not show summer salmon or steelhead spawning/incubation for several of the streams in these WRIAs. However, EPA determined that these stream segments should be "Core" use with the 16°C temperature criterion because juvenile rearing occurs and the current maximum 7DADM temperatures are at or below 16°C, which are temperatures that can support high density juvenile rearing use (see Appendix C for site specific information and a list of the stream segments EPA determined should be "Core" use with a 16°C temperature criterion).
- Several rivers and streams in WRIA 32 and WRIA 35: The WDFW Databases show summer steelhead spawning ends in mid-May in these WRIAs, which would not warrant a "Core" use based on EPA's general approach. However, based on site-specific information, EPA determined that the higher elevation steelhead spawning distribution should be "Core" use with the 16°C temperature criterion (generally above 1,500- 1,800 ft; see Appendix C for the site specific information). The site-specific information indicates that in the higher elevation portion of the steelhead spawning distribution, spawning extends into June and fry are still emerging in late June or later.

II. Stream Segments Where The WDFW Databases Indicate Summer Salmon/Steelhead Spawning, But EPA Did Not Make A "Core" Use Determination

- Lower Stilliguamish River in WRIA 5: The WDFW Databases show Chinook and pink salmon spawning between RM 6 RM 17.8 and shows spawning starts in early September, which would warrant a "Core" use based on EPA's general approach. However, site specific information indicates that spawning generally starts in late September in this reach (the early September spawning occurs upstream of this reach). The site specific information shows that only one redd for each species has been recorded prior to September 15 in this reach. For this reason, EPA did not make a "Core" use determination for this reach (see Appendix C for the site specific information). (NOTE: EPA did determine that 13C should apply beginning October 1 for this reach to ensure spawning is protected, this is discussed in more detail in section III below).
- Chehalis River in WRIA 23: The WDFW Databases show Chinook salmon spawn in early September in the mainstem Chehalis River below the confluence with the S.F. of the Chehalis, which would warrant a "Core" use based on EPA's general approach. However, site specific information indicates Chinook spawning in the mainstem reach of the Chehalis begins in late September (the early September Chinook spawning occurs in the higher elevation streams of the Chehalis basin). Therefore, EPA did not make a "Core" use determination for this reach (see Appendix C for the site specific information). (NOTE: EPA did determine that 13°C should apply beginning October 1 for this reach to ensure spawning is protected, this is discussed in more detail in section III below).

• Lower Little Klickitat and tributaries to the lower Klickitat (WRIA 30); lower Rock Creek and other small streams draining into the Columbia River (WRIA 31); lower Ahtanum River (WRIA 37); lower Naches River and Cowiche and Spring Creeks (WRIA 38); Umtanum River (WRIA 39); lower Eniat River (WRIA 46); lower Methow River (WRIA 48); Okanogon and Similkameen River (WRIA 49): The WDFW Databases show steelhead spawning distribution ending in early June or later for salmon stocks in the rivers and creeks listed above, which would warrant a "Core" use based on EPA's general approach. However, site specific data from these stream reaches show that steelhead spawning ends earlier than early June (typically mid-May) and that the early June or later steelhead spawning occurs higher in the watershed. Due to this relatively early spawning period in these reaches (generally below 1,500- 1,800 ft), few eggs would be likely to incubate into late June. For this reason, EPA did not make a "Core" use determination for these reaches (see Appendix C for site specific information). (NOTE: EPA did determine that 13°C should apply to these reaches to ensure protection of steelhead egg incubation from Feb 15 to either June 1 or June 15, this is discussed in more detail in section III below).

III. Stream Segments Where EPA Used Site-Specific Information to Determine Where and When 13°C Is Needed to Protect Salmon/Steelhead Spawning or Incubation

See Section IV of the *Basis for EPA's Partial Disapproval of Washington's 2003 Water Quality Standard Revisions* document for a description of EPA's basis for application of the 13°C criterion.

- Nooksack River in WRIA 1: The WDFW Databases indicate that Chinook salmon spawning starts in early September in the lower Nooksack River between RM 5 and RM 24, which according EPA's basis for application of 13°C would warrant application of 13°C starting September 15. However, site-specific information indicates that Chinook spawning typically begins in late September to early October in this reach which does not warrant application of 13°C. This is because if the 16°C criterion associated with the "Core" use is attained in the summer, the temperatures are likely to be sufficiently cool to protect spawning that begins in the fall (*i.e.*, temperatures will cool to 13°C when spawning occurs; see Appendix C for additional information).
- Lower Stillaguamish River in WRIA 5 and Chehalis River in WRIA 23: The WDFW Databases indicate that Chinook salmon spawning starts in early September in the lower mainstem reaches of these rivers (RM 6-17.8 in the Stillaguamish River, and portions of the Chehalis River between RM 33 and the confluence with the S.F. of the Chehalis River). As discussed in section II, site-specific information show that Chinook spawning actually starts in late September in these lower reaches, and starts in early September (as referenced in the WDFW Databases) upstream of these reaches. Because these lower reaches retain the "Non-Core" use designation and the applicable 17.5°C criterion, EPA

determined that these rivers may not cool to the 13°C temperature needed to protect the beginning of Chinook spawning in these reaches. EPA, therefore, determined that the 13°C criterion should apply to these lower reaches from Oct 1 – May 15 to ensure Chinook spawning and incubation are protected (see Appendix C for site specific information).

- Snoqualmie River in WRIA 7: The WDFW Databases indicate Chinook spawning (from RM 20 and continuing upstream) starts in mid-September, which according to EPA's basis for application of 13°C would not warrant application of 13°C. However, site-specific information shows that Chinook spawning actually starts in early September, which does warrant application of 13°C criterion. Therefore, EPA applied the 13°C criterion to ensure Chinook spawning and incubation is protected (see Appendix C for site specific information).
- John's Creek (lower portion) in WRIA 14; Union Creek in WRIA 15; and Snow, Salmon, and Jimmycomelately Creeks in WRIA 17: The WDFW Databases indicate that chum spawning starts in early September. This would result in applying 13°C starting September 15th following EPA's basis for application of 13°C. However, site-specific information shows that chum salmon spawn in large numbers upon entering the river, and as a result, a significant percent of the chum population spawn *prior* to September 15th, which would warrant earlier application of the 13°C criterion. Therefore, EPA has determined that 13°C needs to be applied starting September 1st to protect chum spawning (see Appendix C for site specific information).
- Rivers in WRIA 30 (Klickitat) and WRIA 31 (Rock-Glade): The WDFW Databases indicate summer steelhead spawning ends in early June in these two WRIAs, which would warrant the 13°C criterion from Feb 15 to June 15 according to EPA's basis for application of 13°C. However, site-specific information indicates spawning ends prior to early June (*i.e.*, late April mid May) in the lower elevation portion of the steelhead spawning areas. Based on this information, EPA determined that 13°C criterion should apply from Feb 15 to June 15 in the higher elevation steelhead spawning areas (generally above 1,500-1,800 ft) and from Feb 15 to June 1 in the lower elevation steelhead spawning areas (*i.e.*, those waters with a "Non-Core" use designation and 17.5°C temperature criterion; see Appendix C for site specific information).
- Rivers in WRIA 32 and WRIA 35: The WDFW Databases indicate summer steelhead spawning ends in mid-May in these WRIAs, which would not warrant a 13°C criterion. However, site-specific information indicates that in the higher elevation portion of the steelhead spawning distribution, spawning extends into June and the fry are still emerging in late June or later. Based on this information, EPA determined that 13°C criterion should apply from Feb 15 to June 15 in the higher elevation steelhead spawning areas (generally above 1,500-1,800 ft) and from Feb 15 to June 1 in the lower elevation steelhead spawning areas (*i.e.*, those

waters with a "Non-Core" use designation and 17.5°C temperature criterion, see Appendix C for site specific information).

- Middle portion of the Wenatchee River (WRIA 45) and the Methow River (WRIA 48): The WDFW Databases indicate spring Chinook start spawning in August in these WRIAs. However, site-specific information indicate that the beginning of spring Chinook spawning in the lower portion of the spring Chinook spawning distribution occurs later than when spawning begins in the upper elevation reaches. The WDFW Databases reflect the start time for the higher elevation spawning. For these rivers, EPA used the average date spawning begins based on the site-specific information (rounded to the 1st or 15th of the month) instead of the using the WDFW Databases (see Appendix C for additional information) to determined the timeframe 13°C should apply.
- Lower portion of the Wenatchee River (WRIA 45) and the Methow River (WRIA 48): The summer Chinook spawning that occurs in these rivers starts in late September, therefore, these river segments are designated as "Non-core" use (see Basis I of EPA's Basis for EPA's Partial Disapproval of Washington's 2003 Water Quality Standard Revision for a discussion on the approach EPA used to determine when a stream segment should be designated as "Core" or "Non-core). Because these reaches retain the "Non-Core" use designation and the applicable 17.5°C criterion, EPA determined that these rivers may not cool to the 13°C criterion needed to protect Chinook spawning when it occurs. Therefore, EPA determined that the 13°C criterion should apply to these reaches from Oct 1 to May 15 to ensure Chinook spawning and incubation is protected (see Appendix C for site specific information).